



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/000,149

12/04/2001

Tracy J. Kimbrel

00280683AA

8249

30743 7590 03/01/2007

WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.

11491 SUNSET HILLS ROAD

SUITE 340

RESTON, VA 20190

EXAMINER

JEANTY, ROMAIN

ART UNIT

PAPER NUMBER

3623

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/000,149	Applicant(s) KIMBREL ET AL.	
	Examiner Romain Jeanty	Art Unit 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-14, 17-27 is/are rejected.
- 7) ☐ Claim(s) 4, 5, 15 and 16 is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Final Office action is in response to the communication received on November 8, 2006. Claims 1-21 were amended. No claims were added. Claims 1-27 are pending in the application.

Response to Amendment

2. Applicants' amendment has overcome the 35 U.S.C. 101 rejection and the 35 U.S.C. 112, second paragraph rejection. The rejections are withdrawn.

Response to Arguments

3. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed.

Art Unit: 3623

Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 22 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,085,837. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is well settled that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184 (CCPA). In addition, claim 22 is not patentably distinct from claim 1 of U.S. Patent No.

Art Unit: 3623

7,085,837 because it would have been obvious to person of ordinary skill in the art to include ... a fixed length... as a way to vigorously allocate resources.

**Claims 23-27 depend from claim 22;
therefore claims 22-27 are rejected on the ground
of nonstatutory obviousness-type double
patenting.**

Remarks

7. Applicants asserted that Boyd and Dooly fails to teach the claimed invention. Applicants further amended the claims and supported their assertion by arguing that Boyd and Dooly fail to teach ...benefit which is based on the benefit gained associated with one or more customer's demand... implementing the time-varying allocation of resources amongst one or more customers to yield said benefit. In response, the examiner respectfully disagrees because Dietrich in the same field of endeavor, discloses a method for discrete activity resource allocation which minimizes cost and maximizing profits may be characterized as maximizing benefit associated with one or more customer's demand (See abstract; figure 4; col. 2, lines 17-58). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Boud and Dooly to include the teachings of Dietrich in order to yield the optimal resource allocation producing the maximum benefit.

Further, in response to applicant's argument that the Boyd and Dooly references would not be combined by one of ordinary skill in the art, the examiner recognizes that obviousness can only be established by combining or modifying

Art Unit: 3623

the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, combining Boyd and Dooly further in view of Dietrich would have been obvious to a person of ordinary skill in the art in order to yield the optimal resource allocation producing the maximum benefit.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 6-14, 17-24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al (US 2005/0256778) in view of "TCP Dynamic Acknowledgment Delay: Theory and Practice" by Dooly et al, Proceedings of the

Art Unit: 3623

30th annual ACM symposium on Theory of computing, ACM Press, 1998;

hereinafter referred to as Dooly, and further in view of Dietrich et al "Dietrich".

As per claim 1, Boyd teaches resource allocation comprising: associating each customer's demand with a benefit gained (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company.). Boyd does not explicitly teach time-varying resource allocation. Dooly teaches that it is known to find a time-varying resource allocation that would yield a benefit (paragraph 1 where the network varies the arrival times into sequences to minimize cost and the cost of a delay). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a time-varying resource allocation to provide means to optimize a resource that varies with time, such as the demand for a product.

The combination of Boyd and Dooly fails to explicitly disclose ...which is based on the benefit gained associated with one or more customer demands

and implementing the time-varying allocation of resources amongst one or more customers to yield said benefit. Dietrich in the same field of endeavor, discloses a method for discrete activity resource allocation which minimizes cost and maximizing profits may be characterized as maximizing benefit (See abstract; figure 4; col. 2, lines 17-58). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Boud and Dooly to include the teachings of Dietrich in order to yield the optimal resource allocation producing the maximum benefit.

As per claims 2, 13 and 23, Boyd teaches discounting future benefits (paragraph 244: "boundaries and constraints" whereby these features represent a discounting action since the boundary on the price achieved in the future would need to take into consideration the time-value of money); and finding optimal allocations of resources from current time through current time plus lookahead based on discounted benefit and forecast demand, wherein the step of discounting future benefits is based on a future discounting algorithm (The combination of paragraph 105: "predicting future customer demand" and paragraph 250: "Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem." This teaches that the algorithms are used to determine both present and future information). Boyd does not explicitly teach "lookahead" factors. Dooly teaches that it is known to have "lookahead" factors (paragraph 1: lookahead coefficient. See also paragraphs 8 and 51). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been

Art Unit: 3623

obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a lookahead factor to provide means to anticipate future demands and adequately allocate resources accordingly.

As per claims 3, 14 and 24, Boyd teaches the future discounting algorithm is based on a policy which, when faced with a choice between a guaranteed benefit immediately and a potential benefit in the future, a decision is made by comparing the guaranteed benefit value with a discounted value of the potential future benefit (The combination of paragraph 105: "predicting future customer demand" and paragraph 250: "Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem." This teaches that the algorithms are used to determine both present and future information and since the objective of this teaching is to optimize price and profit, it would be inherent that the system would calculate both and chose the option that optimizes profit the most.).

As per claim 6, Boyd teaches resource allocation is done to maximize a benefit (Paragraph 241 teaches a pricing optimization system which is trying to maximize the benefit of profit to the company).

As per claims 7 and 17, Boyd teaches the benefit is a tangible benefit (paragraph 241: pricing optimization in tangible).

As per claims 8, 18 and 27, Boyd teaches the tangible benefit is a profit and resource allocation is done to maximize the profit (paragraph 241: "The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining an optimization problem and

Art Unit: 3623

producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need. Other types of pricing optimization solution are also known." Whereby additional resources would be applied to the promotion that proves to be optimal).

As per claims 9-10 and 19-20, Boyd teaches the benefit is an intangible benefit, particularly customer satisfaction where resource allocation is done to maximize customer satisfaction (paragraph 241: "meet a user's need" is intangible and satisfies a customer).

As per claims 11 and 21, Boyd does not explicitly teach computer cycles and resource allocation. Dooly teaches that it is known that the resource is computer cycles and resource allocation is done to more efficiently solve computationally intensive problems (paragraph 1 where the network contains computers which cycle through transmission control protocol acknowledgments and the arrival times are sequenced such that the computer's resources are allocated in an optimal fashion). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a computer cycling resource allocation problem as this claim language indicates the intended use only and does not impact the functionality of the invention. The optimization could be applied to various resources in various industries. The recitation of the intended use or

Art Unit: 3623

purpose of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use or fulfilling said purpose, then it meets the claim. Ex parte Masham, 2 USPQ2d 1647 (1987).

As per claim 12, Boyd teaches modeling the resource allocation problem mathematically (paragraph 37: "The CUSM 300 only looks to customer categories in which sales are independent events to avoid covariance terms in the mathematical evaluation of the market model created by the promotion pricing system 100."); dividing time into intervals of fixed length based on the assumption that demand is uniformly spread throughout each such interval (paragraph 43: "The DAM 500 may then determine a time interval at which to aggregate transaction volume data, step 530, on the basis of the number of time periods needed to estimate parameters, the incentive offer and price variation cycle, and data collection frequency." Whereby time interval represents a fixed length of time); and associating each customer's demand with a benefit gained (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze,

Art Unit: 3623

evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company). Boyd does not explicitly teach time-varying resource allocation.

Dooly teaches that it is known to find a time-varying resource allocation that would maximize benefit gained (paragraph 1 where the network varies the arrival times into sequences to minimize cost and the cost of a delay). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a time-varying resource allocation to provide means to optimize a resource that varies with time, such as the demand for a product.

As per claim 22, Boyd teaches modeling the server allocation problem mathematically (paragraph 37: "The CUSM 300 only looks to customer categories in which sales are independent events to avoid covariance terms in the mathematical evaluation of the market model created by the promotion pricing system 100."); dividing time into intervals of fixed length based on the assumption that each site's demand is uniformly spread throughout each such interval (paragraph 43: "The DAM 500 may then determine a time interval at which to aggregate transaction volume data, step 530, on the basis of the number of time periods needed to estimate parameters, the incentive offer and price variation cycle, and data collection frequency." Whereby time interval represents a fixed length of time); maintaining server allocation fixed for the duration of an interval, servers being reallocated only at the beginning of an

Art Unit: 3623

interval, and a reallocated server being unavailable for the length of the interval during which it is reallocated providing time to "scrub" the old site (customer data) to which the server was allocated, to reboot the server and to load the new site (820) to which the server has been allocated, each server having a rate of requests it can serve in a time interval (530) and customers share servers only in the sense of using the same servers at different times, but do not use the same servers at the same time (It is inherent in a computer system with a server (20) that the server is dedicated to one task at a time and that it has a rate at which it can handle requests and that old data would need to be removed and new information loaded onto it.); and associating each customer's demand with a benefit gained by the service provider (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company). Boyd does not explicitly teach a time-varying server. Dooly teaches that it is known to find a time-varying server allocation that would maximize benefit gained by satisfying sites' demand (paragraph 1 where the network varies the arrival times into sequences to minimize cost and the cost

Art Unit: 3623

of a delay). Dooly is an analogous art as it also teaches about solving for a resource optimization problem. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optimization system of Boyd with a time-varying resource allocation to provide means to optimize a resource that varies with time, such as the demand for a product.

Allowable Subject Matter

8. Claims 4-5, 14-15, 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

Prior art of record fail to teach wherein the future discounting algorithm is a deterministic algorithm that achieves a competitive ratio of $3(1 + \frac{1}{L})$, where L is a lookahead factor which models some amount of future demand known to a provider of the resource, and wherein the algorithm is an intermittent reset algorithm that achieves a competitive ratio of $1 + 4(L - 7)$, where L is a lookahead factor which models some amount of $(L-7)$ future demand known to a provider of the resource.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

Art Unit: 3623

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

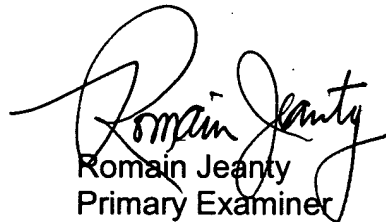
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Romain Jeanty whose telephone number is (571) 272-6732. The examiner can normally be reached on Mon-Thurs 7:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq R. Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 22, 2007



Romain Jeanty
Primary Examiner
Art Unit 3623